

Tab A

Applicant: John S. Lollar
Appln. Serial No: 10/813,507
Filing Date: March 30, 2004



Title: NUCLEIC ACID AND AMINO ACID SEQUENCES ENCODING HIGH-LEVEL
EXPRESSOR FACTOR VIII POLYPEPTIDES AND METHODS OF USE

Appendix A

CLUSTAL W (1.82) multiple sequence alignment for SEQ ID NO: 15, 17, and 19

```
SEQIDNO_15.      MQLELSTCVFLCLLPLGFSAIRRYLGAVELSWDYRQSELLRELHVDTRFPATAPGALPL 60
SEQIDNO_19.      MQLELSTCVFLCLLPLGFSAIRRYLGAVELSWDYRQSELLRELHVDTRFPATAPGALPL 60
SEQIDNO_17.      MQLELSTCVFLCLLPLGFSAIRRYLGAVELSWDYRQSELLRELHVDTRFPATAPGALPL 60
                  *****
SEQIDNO_15.      GPSVLKYKTVFEFTDQLFSVARPRPPNMGLLGPTIQAEVYDVTVVTLKNMASHPVSLHA 120
SEQIDNO_19.      GPSVLKYKTVFEFTDQLFSVARPRPPNMGLLGPTIQAEVYDVTVVTLKNMASHPVSLHA 120
SEQIDNO_17.      GPSVLKYKTVFEFTDQLFSVARPRPPNMGLLGPTIQAEVYDVTVVTLKNMASHPVSLHA 120
                  *****
SEQIDNO_15.      VGVSFWKSSSEGAEYEDHTSQREKEDKVLPGKSQTYVWQVLKENGPTASDPPCLTYSYLS 180
SEQIDNO_19.      VGVSFWKSSSEGAEYEDHTSQREKEDKVLPGKSQTYVWQVLKENGPTASDPPCLTYSYLS 180
SEQIDNO_17.      VGVSFWKSSSEGAEYEDHTSQREKEDKVLPGKSQTYVWQVLKENGPTASDPPCLTYSYLS 180
                  *****
SEQIDNO_15.      HVDLVKDLNSGLIGALLVCREGSLTRETONLHEFVLLFAVFDEGKSWHSARNDSWTRAM 240
SEQIDNO_19.      HVDLVKDLNSGLIGALLVCREGSLTRETONLHEFVLLFAVFDEGKSWHSARNDSWTRAM 240
SEQIDNO_17.      HVDLVKDLNSGLIGALLVCREGSLTRETONLHEFVLLFAVFDEGKSWHSARNDSWTRAM 240
                  *****
SEQIDNO_15.      DPAPARAQPAMHTVNGYVNRSLPGLIGCHKKSVYWHVIGMGTSPEVHSIFLEGHTFLVRH 300
SEQIDNO_19.      DPAPARAQPAMHTVNGYVNRSLPGLIGCHKKSVYWHVIGMGTSPEVHSIFLEGHTFLVRH 300
SEQIDNO_17.      DPAPARAQPAMHTVNGYVNRSLPGLIGCHKKSVYWHVIGMGTSPEVHSIFLEGHTFLVRH 300
                  *****
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SEQIDNO_15. HRQASLEISPLTFLTAQTFMLDGLQFLFCHISSHHHGGMEAHVRVESCABEPPQLRRKAD 360
SEQIDNO_19. HRQASLEISPLTFLTAQTFMLDGLQFLFCHISSHHHGGMEAHVRVESCABEPPQLRRKAD 360
SEQIDNO_17. HRQASLEISPLTFLTAQTFMLDGLQFLFCHISSHHHGGMEAHVRVESCABEPPQLRRKAD 360

SEQIDNO_15. EEEDYDDNLYSDMDVRLDGGDVSPFIQIRSVAKKHPKTWVHYISAEEDWDYAPAVPS 420
SEQIDNO_19. EEEDYDDNLYSDMDVRLDGGDVSPFIQIRSVAKKHPKTWVHYISAEEDWDYAPLVL 420
SEQIDNO_17. EEEDYDDNLYSDMDVRLDGGDVSPFIQIRSVAKKHPKTWVHYISAEEDWDYAPLVL 420

SEQIDNO_15. PSDRYSKSLYNSGPQIRGRKYKKARFVAYTDVTFKTRKAIPYESGILGPLLYGEVGD 480
SEQIDNO_19. PDDRSYKQYLNNGPQIRGRKYKKVRFMAYTDETFKTREAIQHEGILGPLLYGEVGD 480
SEQIDNO_17. PDDRSYKQYLNNGPQIRGRKYKKVRFMAYTDETFKTREAIQHEGILGPLLYGEVGD 480

SEQIDNO_15. LIIFKNKASRPYNIYPHGITDVSLHPGRLKGVKHLKDMPILPGETFKYKWTVTVEDGP 540
SEQIDNO_19. LIIFKNQASRPYNIYPHGITDVRLPYSRRLPKGVKHLKDFPILPGEIFKYKWTVTVEDGP 540
SEQIDNO_17. LIIFKNQASRPYNIYPHGITDVRLPYSRRLPKGVKHLKDFPILPGEIFKYKWTVTVEDGP 540

SEQIDNO_15. TKSDPRCLTRYSSINLEKOLASGLIGPLLI CYKESVDQQRGNQMSDKRNVLFSVFDE 600
SEQIDNO_19. TKSDPRCLTRYSSFVNMERDLASGLIGPLLI CYKESVDQQRGNQMSDKRNVLFSVFDE 600
SEQIDNO_17. TKSDPRCLTRYSSFVNMERDLASGLIGPLLI CYKESVDQQRGNQMSDKRNVLFSVFDE 600

SEQIDNO_15. NQSWYLAENIQRFPLPNPDGLQPDPEFQASNIHMSINGYVFDLSQLSVCLHEVAYWYILS 660
SEQIDNO_19. NRSWYLTENIQRFPLPNPAGVQLEDFEFQASNIHMSINGYVFDLSQLSVCLHEVAYWYILS 660
SEQIDNO_17. NRSWYLTENIQRFPLPNPAGVQLEDFEFQASNIHMSINGYVFDLSQLSVCLHEVAYWYILS 660

SEQIDNO_15. VQAQTDFLSVFFSGYTFKHKMVYEDTLTLPFSGETVFMSEMPGLWVLGCHNSDLNRG 720
SEQIDNO_19. IGAQTDFLSVFFSGYTFKHKMVYEDTLTLPFSGETVFMSEMPGLWVLGCHNSDLNRG 720
SEQIDNO_17. IGAQTDFLSVFFSGYTFKHKMVYEDTLTLPFSGETVFMSEMPGLWVLGCHNSDLNRG 720

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[illegible]

**Title: NUCLEIC ACID AND AMINO ACID SEQUENCES ENCODING HIGH-LEVEL
EXPRESSOR FACTOR VIII POLYPEPTIDES AND METHODS OF USE**

SEQIDNO_15.	LQAGMSTFLVYKKCQTPLGMASGHIRDFQITASGYGQWAPKLARLHYSGSINAWSTK	1200
SEQIDNO_19.	LQAGMSTFLVYKKCQTPLGMASGHIRDFQITASGYGQWAPKLARLHYSGSINAWSTK	1200
SEQIDNO_17.	LHAGMSTFLVYNKCQTPLGMASGHIRDFQITASGYGQWAPKLARLHYSGSINAWSTK	1190
	*:*****;*****:*****:*****:*****:*****:*****:	

SEQIDNO_15.	FFGNVDSSGIKHNIFNPPIIARYIRLHPHTHYISIRSTLRMELMGCDLNSCMPLGMSKAI	1320
SEQIDNO_19.	FFGNVDSSGIKHNIFNPPIIARYIRLHPHTHYISIRSTLRMELMGCDLNSCMPLGMSKAI	1320
SEQIDNO_17.	FFGNVDSSGIKHNIFNPPIIARYIRLHPHTHYISIRSTLRMELMGCDLNSCMPLGMSKAI	1310
	*****	*****

SEQIDNO_15. QGVKSLTSMYVKFELISSQDGHQWTLFFQNGKVKVFQGNQDSFTPVNSLDPPLLTR 1440
SEQIDNO_19. QGVKSLTSMYVKFELISSQDGHQWTLFFQNGKVKVFQGNQDSFTPVNSLDPPLLTR 1440
SEQIDNO_17. QGVKSLTSMYVKFELISSQDGHQWTLFFQNGKVKVFQGNQDSFTPVNSLDPPLLTR 1430

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SEQIDNO_15. LRIHPQSWVHQIALRMEVLGCEAQDLY 1467
SEQIDNO_19. LRIHPQSWVHQIALRMEVLGCEAQDLY 1467
SEQIDNO_17. LRIHPQSWVHQIALRMEVLGCEAQDLY 1457

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APPENDIX B

CLUSTAL W (1.82) multiple sequence alignment for SEQ ID NO: 14, 16, and 18

```
SEQIDNO_14      ATGCAGCTAGAGCTCCACCTGTGTCTTTCTGTCTCTTGTCCACTCGGCTTTAGTGCC 60
SEQIDNO_18      ATGCAGCTAGAGCTCCACCTGTGTCTTTCTGTCTCTTGTCCACTCGGCTTTAGTGCC 60
SEQIDNO_16      ATGCAGCTAGAGCTCCACCTGTGTCTTTCTGTCTCTTGTCCACTCGGCTTTAGTGCC 60
*****
SEQIDNO_14      ATCAGGAGATACTACCTGGCGCAGTGGAACTGTCTCTGGGACTACCGGCAAGTGAATC 120
SEQIDNO_18      ATCAGGAGATACTACCTGGCGCAGTGGAACTGTCTCTGGGACTACCGGCAAGTGAATC 120
SEQIDNO_16      ATCAGGAGATACTACCTGGCGCAGTGGAACTGTCTCTGGGACTACCGGCAAGTGAATC 120
*****
SEQIDNO_14      CTCGGTGAGCTGCGACGTGGACACCAAGATTTCCTGCTACAGCGCCAGGAGCTCTTCCGTTG 180
SEQIDNO_18      CTCGGTGAGCTGCGACGTGGACACCAAGATTTCCTGCTACAGCGCCAGGAGCTCTTCCGTTG 180
SEQIDNO_16      CTCGGTGAGCTGCGACGTGGACACCAAGATTTCCTGCTACAGCGCCAGGAGCTCTTCCGTTG 180
*****
SEQIDNO_14      GGCCCGTCAGTCTCTGTACAAAAGACTGTGTCTGTAGAGTTCACGGATCAACTTTTCAGC 240
SEQIDNO_18      GGCCCGTCAGTCTCTGTACAAAAGACTGTGTCTGTAGAGTTCACGGATCAACTTTTCAGC 240
SEQIDNO_16      GGCCCGTCAGTCTCTGTACAAAAGACTGTGTCTGTAGAGTTCACGGATCAACTTTTCAGC 240
*****
SEQIDNO_14      GTTGCCAGGCCCGCAGGCCACCATGGATGGGTCTGTGGTCTCCTACCATCCAGGCTGAGGTT 300
SEQIDNO_18      GTTGCCAGGCCCGCAGGCCACCATGGATGGGTCTGTGGTCTCCTACCATCCAGGCTGAGGTT 300
SEQIDNO_16      GTTGCCAGGCCCGCAGGCCACCATGGATGGGTCTGTGGTCTCCTACCATCCAGGCTGAGGTT 300
*****
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```
SEQIDNO_14      TACGACACGGTGGTTCACCTCCCTGAAGAACATGGCTTCTCATCCGTTAGTCTTCACGCT 360
SEQIDNO_18      TACGACACGGTGGTTCACCTCCCTGAAGAACATGGCTTCTCATCCGTTAGTCTTCACGCT 360
SEQIDNO_16      TACGACACGGTGGTTCACCTCCCTGAAGAACATGGCTTCTCATCCGTTAGTCTTCACGCT 360
*****
SEQIDNO_14      GTCGGCGTCTCCTTCTGGAATCTTCGGAAGCGCTGAATATGAGGATCACACCAGCCAA 420
SEQIDNO_18      GTCGGCGTCTCCTTCTGGAATCTTCGGAAGCGCTGAATATGAGGATCACACCAGCCAA 420
SEQIDNO_16      GTCGGCGTCTCCTTCTGGAATCTTCGGAAGCGCTGAATATGAGGATCACACCAGCCAA 420
*****
SEQIDNO_14      AGGAGAAGGAAGACGATAAAGTCCTTCCCGGTAAAGCCAAACCTACGTCTGGCAGGTC 480
SEQIDNO_18      AGGAGAAGGAAGACGATAAAGTCCTTCCCGGTAAAGCCAAACCTACGTCTGGCAGGTC 480
SEQIDNO_16      AGGAGAAGGAAGACGATAAAGTCCTTCCCGGTAAAGCCAAACCTACGTCTGGCAGGTC 480
*****
SEQIDNO_14      CTGAAAGAAAATGGTCCAAACAGCCTCTGACCCACCATGTCTTACCTACTCATACCTGTCT 540
SEQIDNO_18      CTGAAAGAAAATGGTCCAAACAGCCTCTGACCCACCATGTCTTACCTACTCATACCTGTCT 540
SEQIDNO_16      CTGAAAGAAAATGGTCCAAACAGCCTCTGACCCACCATGTCTTACCTACTCATACCTGTCT 540
*****
SEQIDNO_14      CACGTGGACCTGGTGAAGACCTGAATTCGGGCCCTCATTGGAGCCCTGCTGGTTGTAGA 600
SEQIDNO_18      CACGTGGACCTGGTGAAGACCTGAATTCGGGCCCTCATTGGAGCCCTGCTGGTTGTAGA 600
SEQIDNO_16      CACGTGGACCTGGTGAAGACCTGAATTCGGGCCCTCATTGGAGCCCTGCTGGTTGTAGA 600
*****
SEQIDNO_14      GAAGGGAGTCTGACCAAGAAAGGACCCAGAACCTGCACGAATTTGTACTACTTTTGCT 660
SEQIDNO_18      GAAGGGAGTCTGACCAAGAAAGGACCCAGAACCTGCACGAATTTGTACTACTTTTGCT 660
SEQIDNO_16      GAAGGGAGTCTGACCAAGAAAGGACCCAGAACCTGCACGAATTTGTACTACTTTTGCT 660
*****
SEQIDNO_14      GTCTTTGATGAAGGGAAAAGTTGGCACTCAGCAAGAAATGACTCCTGGACACGGGCCATG 720
SEQIDNO_18      GTCTTTGATGAAGGGAAAAGTTGGCACTCAGCAAGAAATGACTCCTGGACACGGGCCATG 720
SEQIDNO_16      GTCTTTGATGAAGGGAAAAGTTGGCACTCAGCAAGAAATGACTCCTGGACACGGGCCATG 720
*****
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```
SEQIDNO_14      GATCCCGCACCTGCCAGGSCCCAGCCCTGCAATGCACACAGTCAATGGCTATGTCAACAGG 780
SEQIDNO_18      GATCCCGCACCTGCCAGGSCCCAGCCCTGCAATGCACACAGTCAATGGCTATGTCAACAGG 780
SEQIDNO_16      GATCCCGCACCTGCCAGGSCCCAGCCCTGCAATGCACACAGTCAATGGCTATGTCAACAGG 780
*****
SEQIDNO_14      TCTCTGCCAGGTCGTGTCGGATGTCATAAGAAATCAGTCTACTGGCACGTGATTGGAATG 840
SEQIDNO_18      TCTCTGCCAGGTCGTGTCGGATGTCATAAGAAATCAGTCTACTGGCACGTGATTGGAATG 840
SEQIDNO_16      TCTCTGCCAGGTCGTGTCGGATGTCATAAGAAATCAGTCTACTGGCACGTGATTGGAATG 840
*****
SEQIDNO_14      GGCACCAGCCCGGAAGTGCACCTCCATTTTCTTGAAGGCCACACGTTTCTCGTGAGGCAC 900
SEQIDNO_18      GGCACCAGCCCGGAAGTGCACCTCCATTTTCTTGAAGGCCACACGTTTCTCGTGAGGCAC 900
SEQIDNO_16      GGCACCAGCCCGGAAGTGCACCTCCATTTTCTTGAAGGCCACACGTTTCTCGTGAGGCAC 900
*****
SEQIDNO_14      CATCGCCAGGCTTCCTTGGAGATCTCGCCACTAACTTTCCTCACTGCTCAGACATTCCCTG 960
SEQIDNO_18      CATCGCCAGGCTTCCTTGGAGATCTCGCCACTAACTTTCCTCACTGCTCAGACATTCCCTG 960
SEQIDNO_16      CATCGCCAGGCTTCCTTGGAGATCTCGCCACTAACTTTCCTCACTGCTCAGACATTCCCTG 960
*****
SEQIDNO_14      ATGGACCTTGGCCAGTTCCTACTGTTTGTCAATCTCTTCCACCACCACCATGGTGGCATG 1020
SEQIDNO_18      ATGGACCTTGGCCAGTTCCTACTGTTTGTCAATCTCTTCCACCACCACCATGGTGGCATG 1020
SEQIDNO_16      ATGGACCTTGGCCAGTTCCTACTGTTTGTCAATCTCTTCCACCACCACCATGGTGGCATG 1020
*****
SEQIDNO_14      GAGGCTCAGTCAGAGTAGAAAGCTGCGCCGAGGAGCCCCAGCTGCGGAGGAAAGCTGAT 1080
SEQIDNO_18      GAGGCTCAGTCAGAGTAGAAAGCTGCGCCGAGGAGCCCCAGCTGCGGAGGAAAGCTGAT 1080
SEQIDNO_16      GAGGCTCAGTCAGAGTAGAAAGCTGCGCCGAGGAGCCCCAGCTGCGGAGGAAAGCTGAT 1080
*****
```

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SEQIDNO_14 GAAGAGGAAGATTATGATGACAATTTGTACGACTCGGACATGGACGTGGTCCGGCTCGAT 1140
SEQIDNO_18 GAAGAGGAAGATTATGATGACAATTTGTACGACTCGGACATGGACGTGGTCCGGCTCGAT 1140
SEQIDNO_16 GAAGAGGAAGATTATGATGACAATTTGTACGACTCGGACATGGACGTGGTCCGGCTCGAT 1140

SEQIDNO_14 GGTGACGACGTGTCTCCCTTTATCCAAATCCGCTCGGTGCCAAGAAGCATCCCAAAACC 1200
SEQIDNO_18 GGTGACGACGTGTCTCCCTTTATCCAAATCCGCTCAGTTGCCAAGAAGCATCCTAAACT 1200
SEQIDNO_16 GGTGACGACGTGTCTCCCTTTATCCAAATCCGCTCAGTTGCCAAGAAGCATCCTAAACT 1200

SEQIDNO_14 TGGGTGCACATCTGCAGAGGAGGAGGACTGGGACTACGCCCCCGGGTCCCCAGC 1260
SEQIDNO_18 TGGGTACATTACATTGCTGCTGAAGAGGAGGACTGGGACTATGCTCCCTTAGTCTCGCC 1260
SEQIDNO_16 TGGGTACATTACATTGCTGCTGAAGAGGAGGACTGGGACTATGCTCCCTTAGTCTCGCC 1260

SEQIDNO_14 CCCAGTGACAGAAAGTTATAAAAGTCTCTACTTTGAACAGTGGTCTCAGCGAATTGGTAGG 1320
SEQIDNO_18 CCCGATGACAGAAAGTTATAAAAGTCAATATTTGAACAATGGCCCTCAGCGGATTGGTAGG 1320
SEQIDNO_16 CCCGATGACAGAAAGTTATAAAAGTCAATATTTGAACAATGGCCCTCAGCGGATTGGTAGG 1320

SEQIDNO_14 AAATACAAAAAGTCGATTCTCGCTTACACGGATGTAACATTTAAGACTCGTAAAGCT 1380
SEQIDNO_18 AAGTACAAAAAGTCGGATTATGGCATACACAGATGAAACCTTTAAGACGCGTGAAGCT 1380
SEQIDNO_16 AAGTACAAAAAGTCGGATTATGGCATACACAGATGAAACCTTTAAGACGCGTGAAGCT 1380

SEQIDNO_14 ATTCGGTATGAATCAGGAATCCTGGGACCTTTACTTTATGGAGAAGTTGGAGACACACTT 1440
SEQIDNO_18 ATTCAGCATGAATCAGGAATCTTGGGACCTTTACTTTATGGGAAGTTGGAGACACACTG 1440
SEQIDNO_16 ATTCAGCATGAATCAGGAATCTTGGGACCTTTACTTTATGGGAAGTTGGAGACACACTG 1440

SEQIDNO_14 TTGATTATATTTAAGAAATAAGCGAGCCGACCATATAACATCTACCCCTCATGGAATCACT 1500
SEQIDNO_18 TTGATTATATTTAAGAAATCAAGCAAGCAGACCATATAACATCTACCCCTCAGGAATCACT 1500
SEQIDNO_16 TTGATTATATTTAAGAAATCAAGCAAGCAGACCATATAACATCTACCCCTCAGGAATCACT 1500

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SEQIDNO_14	GATGTCAGCGCTTTGCA	1560
SEQIDNO_18	GATGTCAGCGCTTTGCA	1560
SEQIDNO_16	GATGTCAGCGCTTTGCA	1560
SEQIDNO_14	CCAATTCTGCCAGGAGAGACTTTCAAGTATATAATGGACAGTCTGCTGGAGATGGGCCA	1620
SEQIDNO_18	CCAATTCTGCCAGGAGAGAAATATTCAAAATATAAATGGACAGTCTGCTAGAGATGGGCCA	1620
SEQIDNO_16	CCAATTCTGCCAGGAGAGAAATATTCAAAATATAAATGGACAGTCTGCTAGAGATGGGCCA	1620
SEQIDNO_14	ACCAAGTCGGATCCTCGGTGCTGACCGGCTACTACTCGAGTCCATTAATCTAGAGAAA	1680
SEQIDNO_18	ACTAAATCAGATCCGCGGTGCTGACCGGCTATTACTCTAGTTTCGTTAATATGAGAGA	1680
SEQIDNO_16	ACTAAATCAGATCCGCGGTGCTGACCGGCTATTACTCTAGTTTCGTTAATATGAGAGA	1680
SEQIDNO_14	GATCTGGCTTCGGGACTCATTTGGCCCTCTCCTCATCTGCTACAAAGAATCTGTAGACCAA	1740
SEQIDNO_18	GATCTAGCTTCAGGACTCATTTGGCCCTCTCCTCATCTGCTACAAAGAATCTGTAGATCAA	1740
SEQIDNO_16	GATCTAGCTTCAGGACTCATTTGGCCCTCTCCTCATCTGCTACAAAGAATCTGTAGATCAA	1740
SEQIDNO_14	AGAGGAAACCCAGATGATGTCAGACAAGAGAAAACGTCATCCTGTTTTCTGTAATTCGATGAG	1800
SEQIDNO_18	AGAGGAAACCCAGATAATGTCAGACAAGAGGAATGTCATCCTGTTTTCTGTAATTCGATGAG	1800
SEQIDNO_16	AGAGGAAACCCAGATAATGTCAGACAAGAGGAATGTCATCCTGTTTTCTGTAATTCGATGAG	1800
SEQIDNO_14	AATCAAGCTGGTACCTCGCAGAGAAATATTACGGCTTCTCTCCCAATCCGGATGGATT	1860
SEQIDNO_18	AACCGAAGCTGGTACCTCACAGAGAAATATACAACGTTTCTCTCCCAATCCAGCTGGAGTG	1860
SEQIDNO_16	AACCGAAGCTGGTACCTCACAGAGAAATATACAACGTTTCTCTCCCAATCCAGCTGGAGTG	1860

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SEQIDNO_14 CAGCCCCAGGATCCAGAGTTCCAAGCTTCTAACATCATGCACAGCATCAATGGCTATGTT 1920
SEQIDNO_18 CAGCTTGAGGATCCAGAGTTCCAAGCCTCCAACATCATGCACAGCATCAATGGCTATGTT 1920
SEQIDNO_16 CAGCTTGAGGATCCAGAGTTCCAAGCCTCCAACATCATGCACAGCATCAATGGCTATGTT 1920
**** * * * * *

SEQIDNO_14 TTTGATAGCTTGCAGCTGTGGTTTGTGTTGACAGAGTGGCATACTGGTACATTCTAAGT 1980
SEQIDNO_18 TTTGATAGTTTGCAGTTGTGAGTTTGTGTTGATGAGTGGCATACTGGTACATTCTAAGC 1980
SEQIDNO_16 TTTGATAGTTTGCAGTTGTGAGTTTGTGTTGATGAGTGGCATACTGGTACATTCTAAGC 1980
**** * * * * *

SEQIDNO_14 GTTGAGCACAGACGGACTTCTCTCCGCTTCTTCTCTGGGTACACCTTCAAAACACAAA 2040
SEQIDNO_18 ATTGAGCACAGACTGACTTCTCTTCTGCTTCTTCTCTGGATATACCTTCAAAACACAAA 2040
SEQIDNO_16 ATTGAGCACAGACTGACTTCTCTTCTGCTTCTTCTCTGGATATACCTTCAAAACACAAA 2040
**** * * * * *

SEQIDNO_14 ATGGTCTATGAAGACACACTCACCCCTGTTCCCTTCTCAGGAGAAACGGTCTTCATGTCA 2100
SEQIDNO_18 ATGGTCTATGAAGACACACTCACCCCTATTCCTTCTGCTTCTTCTCTGGATATACCTTCAAAACACAAA 2100
SEQIDNO_16 ATGGTCTATGAAGACACACTCACCCCTATTCCTTCTGCTTCTTCTCTGGATATACCTTCAAAACACAAA 2100
**** * * * * *

SEQIDNO_14 ATGGAAAACCCAGGTCTCTGGGTCTTGGGTGCCACAACCTCAGACTTGGCGAACAGAGGG 2160
SEQIDNO_18 ATGGAAAACCCAGGTCTATGGATTCTGGGTGCCACAACCTCAGACTTTCGGAACAGAGGC 2160
SEQIDNO_16 ATGGAAAACCCAGGTCTATGGATTCTGGGTGCCACAACCTCAGACTTTCGGAACAGAGGC 2160
**** * * * * *

SEQIDNO_14 ATGACAGCCTTACTGAAGGTGTATAGTTGTGACAGGGACATTGGTGATTATTATGACAAC 2220
SEQIDNO_18 ATGACCGCCTTACTGAAGGTTTCTAGTTGTGACAAGAACACACTGGTGATTATTACGAGGAC 2220
SEQIDNO_16 ATGACCGCCTTACTGAAGGTTTCTAGTTGTGACAAGAACACACTGGTGATTATTACGAGGAC 2220
**** * * * * *

SEQIDNO_14 ACTTATGAAGATATTCAGGCTTCTTGTGAGTGGAAAGAATGTCAATTGAACCTAGGAGC 2280
SEQIDNO_18 AGTTATGAAGATATTTACGATACCTTGTGAGTAAACCAATGCCATTGAACCTAGGAGC 2280
SEQIDNO_16 AGTTATGAAGATATTTACGATACCTTGTGAGTAAACCAATGCCATTGAACCTAGGAGC 2280
**** * * * * *

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Title: NUCLEIC ACID AND AMINO ACID SEQUENCES ENCODING HIGH-LEVEL
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SEQIDNO_14 CCGTCGTACCGGGGAACTCAACAACACATTGGGGCTCTTGGGACCTACATCAGAGCG 2700
SEQIDNO_18 CCGTCGTACCGGGGAACTCAACAACACATTGGGGCTCTTGGGACCTACATCAGAGCG 2700
SEQIDNO_16 CCCTTATACCGTGGAGAACTAATGAACATTGGGACTCCTGGGGCCATATATAAGAGCA 2670
** * ***** ** ***** ** ***** ** ***** ** ***** ** *****

SEQIDNO_14 GAAGTTGAAGACAACATCATGTGTAACCTTCAAAAACAGGGCGTCTCGTCCCTATTCCCTTC 2760
SEQIDNO_18 GAAGTTGAAGACAACATCATGTGTAACCTTCAAAAACAGGGCGTCTCGTCCCTATTCCCTTC 2760
SEQIDNO_16 GAAGTTGAAGATAATATCATGTGTAACCTTCAAAAACAGGGCGTCTCGTCCCTATTCCCTTC 2730
***** ** ***** ** ***** ** ***** ** ***** ** *****

SEQIDNO_14 TACTCGAGCCTTATTCTTATCCGGATGATCAGGAGCAAGGGCAGAACCTCGACACAAC 2820
SEQIDNO_18 TACTCGAGCCTTATTCTTATCCGGATGATCAGGAGCAAGGGCAGAACCTCGACACAAC 2820
SEQIDNO_16 TATTCTAGCCTTATTCTTATGAGGAAGATCAGAGGCAAGGAGCAGAACCTAGAAAAAAC 2790
** * ***** ** ***** ** ***** ** ***** ** ***** ** *****

SEQIDNO_14 TTCGTCCAGCCAAATGAAACAGAACTTACTTTTGGAAAGTGCAGCATCACATGGCACCC 2880
SEQIDNO_18 TTCGTCCAGCCAAATGAAACAGAACTTACTTTTGGAAAGTGCAGCATCACATGGCACCC 2880
SEQIDNO_16 TTTGTCAAGCCTAATGAAACCAAACTTACTTTTGGAAAGTGCACATCATATGGCACCC 2850
** * ***** ** ***** ** ***** ** ***** ** ***** ** *****

SEQIDNO_14 ACAGAAGACGAGTTTGACTGCAAAAGCCTGGGCTACTTTCTGATGTTGACCTGGAAAAA 2940
SEQIDNO_18 ACAGAAGACGAGTTTGACTGCAAAAGCCTGGGCTACTTTCTGATGTTGACCTGGAAAAA 2940
SEQIDNO_16 ACTAAAGATGAGTTTGACTGCAAAAGCCTGGGCTTATTTCTGATGTTGACCTGGAAAAA 2910
** * ***** ** ***** ** ***** ** ***** ** ***** ** *****

SEQIDNO_14 GATGTGCACTCAGGCTTGATCGGGCCCCCTTCTGATGCTCGCGCCAAACACCCCTGAACGCT 3000
SEQIDNO_18 GATGTGCACTCAGGCTTGATCGGGCCCCCTTCTGATGCTCGCGCCAAACACCCCTGAACGCT 3000
SEQIDNO_16 GATGTGCACTCAGGCTTGATGGACCCCTTCTGCTGCTGCCACACTAACACACTGAACCCCT 2970
***** ** ***** ** ***** ** ***** ** ***** ** *****

SEQIDNO_14 GCTCAGGTAGACAAGTGACCGTGCAAGAAATTTGCTGTGTTTTTTCACATATTTTGTAGAG 3060
SEQIDNO_18 GCTCAGGTAGACAAGTGACCGTGCAAGAAATTTGCTGTGTTTTTTCACATATTTTGTAGAG 3060
SEQIDNO_16 GCTCATGGGAGACAAGTGACAGTACAGGAATTTGCTGTGTTTTTTCACCATCTTTGTAGAG 3030

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EXPRESSOR FACTOR VIII POLYPEPTIDES AND METHODS OF USE

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***** ** ***** ** ** ***** ** ***** ** *****
SEQIDNO_14      ACAAGAGCTGGTACTTCACTGAAATGTGGAAGAACTGCCGGCCCCCTGCCATCTG 3120
SEQIDNO_18      ACAAGAGCTGGTACTTCACTGAAATGTGGAAGAACTGCCGGCCCCCTGCCATCTG 3120
SEQIDNO_16      ACCAAAAGCTGGTACTTCACTGAAATATGGAAGAACTGCAGGGCTCCCTGCAATATC 3090
** ** ***** ** ***** ** ***** ** ***** ** *****
SEQIDNO_14      CAGATGGAGGACCCCACTCTGAAAGAAAACATCGCTTCCATGCAATCAATGGCTATGTG 3180
SEQIDNO_18      CAGATGGAGGACCCCACTCTGAAAGAAAACATCGCTTCCATGCAATCAATGGCTATGTG 3180
SEQIDNO_16      CAGATGGAAGATCCCACTTTTAAAGAGAAATTATCGCTTCCATGCAATCAATGGCTACATA 3150
***** ** ***** ** ***** ** ***** ** ***** ** *****
SEQIDNO_14      ATGGATACACTCCCTGGCTTAGTAATGGCTCAGAATCAAAGGATCCGATGGTATCTGCTC 3240
SEQIDNO_18      ATGGATACACTCCCTGGCTTAGTAATGGCTCAGAATCAAAGGATCCGATGGTATCTGCTC 3240
SEQIDNO_16      ATGGATACACTACCTGGCTTAGTAATGGCTCAGGATCAAAGGATTCGATGGTATCTGCTC 3210
***** ** ***** ** ***** ** ***** ** ***** ** *****
SEQIDNO_14      AGCATGGGCAGCAATGAAATATCCATTGATTCATTTTAGCGGACACGTTTCAGTGA 3300
SEQIDNO_18      AGCATGGGCAGCAATGAAATATCCATTGATTCATTTTAGCGGACACGTTTCAGTGA 3300
SEQIDNO_16      AGCATGGGCAGCAATGAAACATCCATTCTATTTCATTTCAGTGGACATGTGTTCACTGA 3270
***** ** ***** ** ***** ** ***** ** ***** ** *****
SEQIDNO_14      CGGAAAAAGGAGGAGTATAAAATGGCCGTGTACAATCTCTATCCGGGTGCTTTTGAGACA 3360
SEQIDNO_18      CGGAAAAAGGAGGAGTATAAAATGGCCGTGTACAATCTCTATCCGGGTGCTTTTGAGACA 3360
SEQIDNO_16      CGAAAAAAGAGGAGTATAAAATGGCACTGTACAATCTCTATCCAGGTGTTTITGAGACA 3330
** ***** ** ***** ** ***** ** ***** ** ***** ** *****
SEQIDNO_14      GTGGAATGCTACCGTCCAAAGTTGGAATTTGGGAATGCGAATAGAATGCCTGATTGGCGAGCAC 3420
SEQIDNO_18      GTGGAATGCTACCGTCCAAAGTTGGAATTTGGGAATGCGAATAGAATGCCTGATTGGCGAGCAC 3420
SEQIDNO_16      GTGGAATGTTTACCATCCAAAGCTGGAATTTGGCGGGTGAATGCCTTATTGGCGAGCAT 3390
***** ** ***** ** ***** ** ***** ** ***** ** *****
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SEQIDNO_14 CTGCAAGCTGGGATGAGCAGACTTTCTCGGTGTACAGCAAGAAGTGTGAGACTCCCCTG 3480
SEQIDNO_18 CTGCAAGCTGGGATGAGCAGCAGACTTTCTCGGTGTACAGCAAGAAGTGTGAGACTCCCCTG 3480
SEQIDNO_16 CTACATGCTGGGATGAGCAGACACTTTTCTCGGTGTACAGCAATAAGTGTGAGACTCCCCTG 3450
** ** ***** ** *****

SEQIDNO_14 GGAATGGCTTCTGGACACATTAGAGATTTTCAGATTACAGCTTCAGGACAATATGGACAG 3540
SEQIDNO_18 GGAATGGCTTCTGGACACATTAGAGATTTTCAGATTACAGCTTCAGGACAATATGGACAG 3540
SEQIDNO_16 GGAATGGCTTCTGGACACATTAGAGATTTTCAGATTACAGCTTCAGGACAATATGGACAG 3510

SEQIDNO_14 TGGGCCCAAGCTGGCCAGACTTCATTATTCCGGATCAATCAATGCCTGGAGCACCAG 3600
SEQIDNO_18 TGGGCCCAAGCTGGCCAGACTTCATTATTCCGGATCAATCAATGCCTGGAGCACCAG 3600
SEQIDNO_16 TGGGCCCAAGCTGGCCAGACTTCATTATTCCGGATCAATCAATGCCTGGAGCACCAG 3570

SEQIDNO_14 GAGCCCTTTCTTGGATCAAGGTGGATCTGTGGCACCATTGATTATTACGGCATCAAG 3660
SEQIDNO_18 GAGCCCTTTCTTGGATCAAGGTGGATCTGTGGCACCATTGATTATTACGGCATCAAG 3660
SEQIDNO_16 GAGCCCTTTCTTGGATCAAGGTGGATCTGTGGCACCATTGATTATTACGGCATCAAG 3630

SEQIDNO_14 ACCCAGGTGCCCGTCAGAAGTTCCTCAGCCTCTACATCTCTCAGTTTATCATGTAT 3720
SEQIDNO_18 ACCCAGGTGCCCGTCAGAAGTTCCTCAGCCTCTACATCTCTCAGTTTATCATGTAT 3720
SEQIDNO_16 ACCCAGGTGCCCGTCAGAAGTTCCTCAGCCTCTACATCTCTCAGTTTATCATGTAT 3690

SEQIDNO_14 AGTCTTGATGGGAAGAAGTGGCAGACTTATCGAGGAAATTCCTACTGGAACCTTAATGGTC 3780
SEQIDNO_18 AGTCTTGATGGGAAGAAGTGGCAGACTTATCGAGGAAATTCCTACTGGAACCTTAATGGTC 3780
SEQIDNO_16 AGTCTTGATGGGAAGAAGTGGCAGACTTATCGAGGAAATTCCTACTGGAACCTTAATGGTC 3750

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SEQIDNO_14      TTCTTTGGCAATGTGGATTTCATCTGGGATAAAACACAATATTTTAAACCCCTCCAATTATT 3840
SEQIDNO_18      TTCTTTGGCAATGTGGATTTCATCTGGGATAAAACACAATATTTTAAACCCCTCCAATTATT 3840
SEQIDNO_16      TTCTTTGGCAATGTGGATTTCATCTGGGATAAAACACAATATTTTAAACCCCTCCAATTATT 3810
*****
SEQIDNO_14      GCTCGATACATCCGTTTGCACCCAACTCATTATAGCATTGCGAGCACTCTTCGCATGGAG 3900
SEQIDNO_18      GCTCGATACATCCGTTTGCACCCAACTCATTATAGCATTGCGAGCACTCTTCGCATGGAG 3900
SEQIDNO_16      GCTCGATACATCCGTTTGCACCCAACTCATTATAGCATTGCGAGCACTCTTCGCATGGAG 3870
*****
SEQIDNO_14      TTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATA 3960
SEQIDNO_18      TTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATA 3960
SEQIDNO_16      TTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATA 3930
*****
SEQIDNO_14      TCAGATGCACAGATTACTGTTTCATCCTTACCTTACCAATATGTTTGGCCACCTGGTCTCCT 4020
SEQIDNO_18      TCAGATGCACAGATTACTGTTTCATCCTTACCTTACCAATATGTTTGGCCACCTGGTCTCCT 4020
SEQIDNO_16      TCAGATGCACAGATTACTGTTTCATCCTTACCTTACCAATATGTTTGGCCACCTGGTCTCCT 3990
*****
SEQIDNO_14      TCAAAAGCTCGACTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAAT 4080
SEQIDNO_18      TCAAAAGCTCGACTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAAT 4080
SEQIDNO_16      TCAAAAGCTCGACTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAAT 4050
*****
SEQIDNO_14      CCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACT 4140
SEQIDNO_18      CCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACT 4140
SEQIDNO_16      CCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACT 4110
*****
SEQIDNO_14      CAGGGAGTAAATCTCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGT 4200
SEQIDNO_18      CAGGGAGTAAATCTCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGT 4200
SEQIDNO_16      CAGGGAGTAAATCTCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGT 4170
*****
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*****
SEQIDNO_14      CAAGATGGCCATCAGTGGACTCTCTTTTTCAGAAATGGCAAAGTAAAGTTTTCAGGGA 4260
SEQIDNO_18      CAAGATGGCCATCAGTGGACTCTCTTTTTCAGAAATGGCAAAGTAAAGTTTTCAGGGA 4260
SEQIDNO_16      CAAGATGGCCATCAGTGGACTCTCTTTTTCAGAAATGGCAAAGTAAAGTTTTCAGGGA 4230
*****

SEQIDNO_14      AATCAAGACTCCTTCACACCTGTGGTGAACCTCTAGACCCACCGTTACTGACTCGCTAC 4320
SEQIDNO_18      AATCAAGACTCCTTCACACCTGTGGTGAACCTCTAGACCCACCGTTACTGACTCGCTAC 4320
SEQIDNO_16      AATCAAGACTCCTTCACACCTGTGGTGAACCTCTAGACCCACCGTTACTGACTCGCTAC 4290
*****

SEQIDNO_14      CTTCGAATTCACCCCCCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGC 4380
SEQIDNO_18      CTTCGAATTCACCCCCCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGC 4380
SEQIDNO_16      CTTCGAATTCACCCCCCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGC 4350
*****

SEQIDNO_14      TCGGAGGCACAGGACCTCTAC 4401
SEQIDNO_18      TCGGAGGCACAGGACCTCTAC 4401
SEQIDNO_16      TCGGAGGCACAGGACCTCTAC 4371
*****
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